



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D350-748-203
Job Sheet 158989



Part No: D350-748-203

Job Qty: 1 ea

Part Name: AS350 / AS355 Stainless Steel Aft Crosstube



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 9/30/17

Job Tracking No:

Due Date: 10/31/17

Created By: Mario Poulin

Type: Stock

Description:

Customer: Air Methods Corporation (CAMET01)

7301 South Peoria Street Englewood, CO, 80112 USA ph:(303) 792-7400

Note: DWG REV A IPP REV:A 15.03.23 NEW ISSUE DD VERF;JLM

Ship Via:

Bill of Materials

Part/Part Name	Part Note	Serial No	Quantity	Location
D350-748-203	DWG REV A IPP REV:A 15.03.23 NEW ISSUE DD VERF;JLM		0.000	
AS350 / AS355 Stainless Steel Aft Crosstube				
AETC-1032			0.000	
Insert				
AN4-41A			0.000	
Bolt				
AN4-6A			0.000	
Bolt				
AN5-32A			0.000	
Bolt				
D350-748-243TRN	DWG REV A IPP Rev: PRELIM New Issue LL 12.05.08		0.000	
Crosstube Installation, High Aft				
D3500-1	DWG REV C IPP Rev:A New Issue 06-06-15 JLM		0.000	
Saddle				
D3501-1	DWG REV A IPP Rev:A New Issue 06-05-09 JLM		0.000	
Bushing				
D3502-1	DWG REV B IPP Rev:A New Issue 06-07-06 JLM IPP Rev:B Add tooling hole 07-03-28 Esr rev C added DT9430 08.11.03 EC verified by:DD		0.000	
Support				
D5123-7	DWG REV D IPP REV:A 15.03.19 NEW ISSUE DD VERF;JLM IPP REV:B 16-11-11 AS PER DWG REV.D DD VERF;JLM		0.000	
Clamp Cushion				
MS21042L4			0.000	
Nut				
MS21042L5			0.000	
Nut				
MS21920-20			0.000	
Clamp				
MS51958-63			0.000	
Screw				
NAS1149C0363R			0.000	
Washer				
NAS1149D0463J			0.000	
Washer				
NAS1149D0563J			0.000	
Washer				

Job Routing

Operation	Qty	Standard	Workcenter/Supplier
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DART
AEROSPACE
S007580



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

DART
AEROSPACE
S010260



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www.dartaerospace.com

AS350 / AS355 Stainless Steel Aft Crosstube

PART NO: D350-748-203
Revision:
Operation: QC
Change No:

Mfg Date: 11/15/17
Job No: 158989

Op No		Due Date	Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time
90	Start up Operation	1 Ea 10/30/17	0.00	0.00	Start up container	
100	DC	1 pcs 10/30/17	0.00	0.00	DC	
110	CNC Bend Crosstubes	1 pcs 10/30/17	5.40	2.44	CNC Bend Crosstube	
120	Crosstubes	1 pcs 10/30/17	0.00	0.00		
127	QC	1 pcs 10/30/17	0.00	0.00	QC15	
128	Crosstubes	1 pcs 10/30/17	0.00	1.98	Crosstube	
130	Crosstubes	1 pcs 10/30/17	0.00	1.98	Crosstube	DAS
140	QC	1 pcs 10/30/17	0.00	0.00	QC6	38
174	Outsource	1 pcs 10/30/17	0.00	0.00	Outsource2	9-89
176	Packaging	1 pcs 10/30/17	0.00	0.00	Packaging2	
178	QC	1 pcs 10/30/17	0.00	0.00	QC5	17-11-2017
180	SprayPaint	1 pcs 10/30/17	0.00	1.08	Spray Paint	NOV 1 1 2017
190	QC	1 pcs 10/30/17	0.00	0.00	QC14	38
200	Crosstubes	1 pcs 10/31/17	0.00	1.98	Crosstube	NOV 1 2 2017
210	QC	1 pcs 10/31/17	0.00	0.00	QC5	38
220	Packaging	1 pcs 10/31/17	0.00	0.00	Packaging1	9-89
230	QC	1 pcs 10/31/17	0.00	0.00	QC4	
240	Packaging	1 pcs 10/31/17	0.00	0.00	Packaging3	
250	QC21-FG	1 Ea 10/31/17	0.00	0.00	QC21	

Part Op 100 - Photocopy bluefile & type labels per PPPD350-748-203 CHG001

Descriptions: 110 - Bend tube as per Dwg D350-748-243 using CNC bender program D350A and Folio FT _____

120 - ***VERIFY CROSSTUBE DIMENSIONS AS PER DWG***

127 - ***MARK CUT LINES***

128 - CUT TUBE AT HEIGHT ON FAI SHEET

130 - 2- Drill Tube as per Dwg D350-748-243 Using DT8876 Drill Jigs, 4- Engrave Part # and Batch # as per Dwg D350-748-243 5-Remove all marks from tube within limits of D350-748-243

174 - ISSUE P/O TO ACCUREN:

180 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

190 - Then, Wrap in plastic bag to protect from scratches

200 - INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER 2-Install supports with Proseal 890 per D350-748-243 and QSI 015 3-Install supports clamps Using Dt8876 as per Dwg D350-748-243, Torque to 60-80 IN-LBS.

210 - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

230 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

240 - Identify and pack for shipping as per PPPD350-748-203

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D350-748-243TRN	1	0	0	0
200-Crosstubes	AETC-1032	1	0	0	0
	D3502-1	2	0	0	0
	D5123-7	2	0	0	0
	MS21920-20	2	0	0	0
	NAS1149C0363R	1	0	0	0
220-Packaging	AN4-41A	8	0	0	0
	AN4-6A	16	0	0	0
	AN5-32A	4	0	0	0
	D3500-1	4	0	0	0
	D3501-1	16	0	0	0
	MS21042L4	24	0	0	0
	MS21042L5	4	0	0	0
	MS51958-63	1	0	0	0
	NAS1149D0463J	32	0	0	0
	NAS1149D0563J	8	0	0	0

Part Specifications

Specifications could not be found.

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Page 1

Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 4/24/2017 Req'd Qty: 1.00

1

Customer:

Reference: SCHEDULED

APR 05 2017

Approvals: Process Plan:

DAS
21
9-88

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D350-748-243

A

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPPD350-748-201 CHG001

110

0.79

110

BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

1.12

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-243 using CNC bender program D350A and

Folio FT

*****UNDER BEND .225" PER SIDE*****

****USE (4) DT9824 SHIM BLOC TO CHECK STRAIGHTNESS****

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☒ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : <u>17/11/2</u>	Step #: <u>110</u>	QTY Effective :		MRB (QSI042) Approval DAS 12 9-89 <u>17/11/2</u>	
Description Work Order Deviation		Disposition		Completed By DAS 12 9-89 <u>17/11/2</u>	
<u>Angle over tolerance after bending</u>		<u>Acceptable.</u>		Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	

Root Cause			FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process	☐							
Misidentified	☐	Past Due	☐	OTHER :						

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Page 2

Item ID: D350-748-203**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** AS350 / AS355 Stainless Steel Aft Crosstube**Start Date:** 4/10/2017 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 4/24/2017 **Req'd Qty:** 1.00***1*****Customer:****Reference:** SCHEDULED**Approvals:****Process Plan:** _____**Date:** _____**Tooling:** _____**Date:** _____**Run Start*****NR1*****QC:** _____**Date:** _____**SPC (Y/N):** _____**Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

127

QC15- Crosstube Dimensional Check

0.00

127

QC

Memo

0.00

Quality Control

MARK CUT LINES

128

0.00

128

Crosstubes

Memo

1.80

Crosstubes

CUT TUBE AT HEIGHT ON FAI SHEET

VERF HEIGHT _____ BY QC 15 LEVEL INSPECTOR _____

VERF TWIST _____ BY QC15 LEVEL INSPECTOR _____

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N900040100

Setup Start *NS1*

Stop *NS2*

Stop *NS2*

Start Date: 4/10/2017 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 4/24/2017 **Req'd Qty:** 1.00 ***1***

Customer:

Reference: SCHEDULED

Run Start *NR1*

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop ***NR2***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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130

0.00

130

Crosstubes

1.69

Crosstubes

Memo

Crosstubes

2- Drill Tube as per Dwg D350-748-243 Using DT8876 Drill Jigs,
Set-up drill table as per QSI 010

3 -Дебиг

4- Engrave Part # and Batch # as per Dwg D350-748-243

5-Remove all marks from tube within limits of D350-748-243

140

QC5- Inspect part completeness to step on W/O

0.00

140

QC

Memo

0.00

Quality Control

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Page 4

Item ID: D350-748-203**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** AS350 / AS355 Stainless Steel Aft Crosstube**Start Date:** 4/10/2017 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 4/24/2017 **Req'd Qty:** 1.00***1*****Customer:****Reference:** SCHEDULED**Approvals:****Process Plan:** _____**Date:** _____**Tooling:** _____**Date:** _____**Run Start*****NR1*****QC:** _____**Date:** _____**SPC (Y/N):** _____**Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

174

Outsource process - NDT per QSI038 4.1

0.00

174

Outsource2

Memo

48.00

Outsource process - NDT

ISSUE P/O TO ACCUREN: _____

176

Receive & Inspect for Damage & Mat'l Certs

0.00

176

Packaging

Memo

0.00

Packaging

1x 807-11-15

178

QC5- Inspect part completeness to step on W/O

0.00

178

QC

Memo

0.00

Quality Control

Work Order ID 158989

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Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 4/24/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference: SCHEDULED

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

180

0.00

180

SprayPaint

0.45

SprayPaint

Memo

***VERIFY BY _____ BATCH # TO MATCH W/O

***VERIFY BY _____ PART # TO MATCH

W/O _____

MASK SCRIBE B# & P# AND VERIFY

1. Apply Axalta 13205S Cleaner inside and outside crosstube per QSI 005 4.1.4
BATCH: _____2. Axalta 230S Metalok inside and outside crosstube per QSI 005 4.1.4
BATCH: _____3. Prime inside and outside crosstube per QSI 005 4.2
BATCH: _____4. Paint outside of crosstube per QSI 005 4.2
BATCH: _____

158989

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N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 4/10/2017 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 4/24/2017 **Req'd Qty:** 1.00 ***1***

Customer:

Reference: SCHEDULED

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:**

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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200

0.00

200

Crosstubes

0.56

Crosstubes

Crosstubes

Memo

INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER

*****LIMIT AIR PRESSURE TO 50 PSI WHEN INSTALLING AETC-1032
INSERT AND ONLY EXPAND INSERT ONCE*****

1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg

2-Install supports with Proseal 890 per D350-748-243 and QSI 015

A/R Proseal 890 Batch: _____
EXP: _____

3-Install supports clamps Using Dt8876 as per Dwg D350-748-243,Torque to 60-80 IN-LBS.

PROSEAL CURE TIME 72 HOURS:

Start:

Finish:

Work Order ID 158989

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Item ID: D350-748-203**Revision ID:****Item Name:** AS350 / AS355 Stainless Steel Aft Crosstube**Start Date:** 4/10/2017 **Start Qty:** 1.00**Required Date:** 4/24/2017 **Req'd Qty:** 1.00**Reference:** SCHEDULED**Accept*****N900040100*****Setup****Start*****NS1*****Stop*****NS2*****Cust Item ID:****Customer:****Run****Start*****NR1*****Stop*****NR2*****Approvals:****Process Plan:** _____**Date:** _____**Tooling:** _____**Date:** _____**QC:** _____**Date:** _____**SPC (Y/N):** _____**Date:** _____**Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

210

QC5- Inspect part completeness to step on W/O

0.00

210

QC

Memo

0.00

Quality Control

***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED
FOR 72HOURS AS PER DWG.***

***VERIFY BY _____ BATCH # TO MATCH W/O

***VERIFY BY _____ PART # TO MATCH
W/O _____

220

Pick Kit

0.00

220

Packaging

Memo

0.00

Packaging

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158.989

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N900040100

Setup Start *NS1*

Stop *NS2*

Customer:

Date:

Run Start *NR1*

Stop ***NR2***

**Insp.
Stamp**

0.00

Memo

0.00

***VERIFY BY BATCH # TO MATCH W/O

***VERIFY BY PART # TO MATCH

W/O

0.00

Packaging

Memo

0.00

Identify and pack for shipping as per PPPD350-748-203

Location:

PPP Rev: _____

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

Picklist Print

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Page 1

Work Order ID: 158989

158989

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017

Required Date: 4/24/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 15.03.23 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-243TRN *D350-748-243TRN* Crosstube Installation, High Aft		Manufactured	No			110	Each	3.0000	1	1			
									**				
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					LG014			3					
					144979			1					
					151601			1					
					151840			1					
D3502-1 *D3502-1* Support		Manufactured	No			220	Each	26.0000	2	2			
									**				
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					LG052			26					
					150010			14					
					150683			12					
D5123-7 *D5123-7* Clamp Cushion		Manufactured	No			220	Each	118.0000	2	2			
									**				
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					LG052			118					
					151551			22					
					153236			96					
AETC-1032 *AETC-1032* Insert		Purchased	No			220	Each	6.0000	1	1			
									**				
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					LG050			6					
					m133732			6					

Picklist Print

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Work Order ID: 158989

158989

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017

Required Date: 4/24/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0363R

Purchased

No

220

Each

362.0000

1

1

NAS1149C0363R

Washer

Location

Loc Qty

Loc Code

FP001

100

m133077

100

GA

46

m133077

46

ST260a

200

m136983

200

ST266

16

m133077

16

MS21920-20

Purchased

No

220

Each

45.0000

2

2

MS21920-20

Clamp

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

25

m136740

25

LG056

18

m128650

1

m132675

1

m134055

16

MS51958-63

Purchased

No

220

Each

90.0000

1

1

MS51958-63

Screw

Location

Loc Qty

Loc Code

ST267

90

m134962

90

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Shop Packet Print

Page 2

Picklist Print

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Work Order ID: 158989

158989

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017

Required Date: 4/24/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0563J

Purchased

No

220

Each

933.0000

8

8

NAS1149D0563.J

Washer

Location

Loc Qty

Loc Code

GA

182

m135774

182

ST263

751

m136295

51

m136986

700

MS21042L4

Purchased

No

220

Each

1,425.000

24

24

MS21042I 4

Nut

Location

Loc Qty

Loc Code

FP001

10

m133363

10

GA

154

m135058

154

OVER007

500

m137166

500

ST303

761

m136450

259

m136838

2

m136986

500

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Shop Packet Print

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Picklist Print

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Work Order ID: 158989

158989

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017

Required Date: 4/24/2017

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

220

Each

356.0000

4

4

MS21042L5

Nut

Location

Loc Qty

Loc Code

GA

16

m127813

16

ST303

340

m136450

2

m136866

13

m136986

150

m137075

75

m137164

100

AN4-41A

Purchased

No

220

Each

87.0000

8

8

AN4-41A

Bolt

Location

Loc Qty

Loc Code

over003

40

m136851

40

ST342

47

m133769

7

m135978

40

D3501-1

Manufactured

No

220

Each

163.0000

16

16

D3501-1

Bushing

Location

Loc Qty

Loc Code

ST037

163

155618

42

157301

121

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Page 5

Work Order ID: 158989

158989

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017

Required Date: 4/24/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0463J

Purchased

No

220

Each

2,128.000

32

32

NAS1149D0463.J

Washer

Location

Loc Qty

Loc Code

GA

48

M135056

48

ST260a

600

M137166

600

ST263

1480

M136838

480

M136983

1000

AN5-32A

Purchased

No

220

Each

86.0000

4

4

AN5-32A

Bolt

Location

Loc Qty

Loc Code

over004

50

m136741

50

ST336

36

m135536

36

D3500-1

Manufactured

No

220

Each

24.0000

4

4

D3500-1

Saddle

Location

Loc Qty

Loc Code

ST406

24

151743

4

152839

20

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Page 5

Picklist Print

Tuesday, April 04, 2017 2:38:02 PM

Page 6

Work Order ID: 158989

158989

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 4/10/2017

Required Date: 4/24/2017

Start Qty: 1.00

Required Qty: 1.00

AN4-6A

Purchased

No

220

Each

622.0000

16

16

AN4-6A

BOLT

Location

Loc Qty

Loc Code

over003

400

M136851

200

M137178

200

ST345

222

M136263

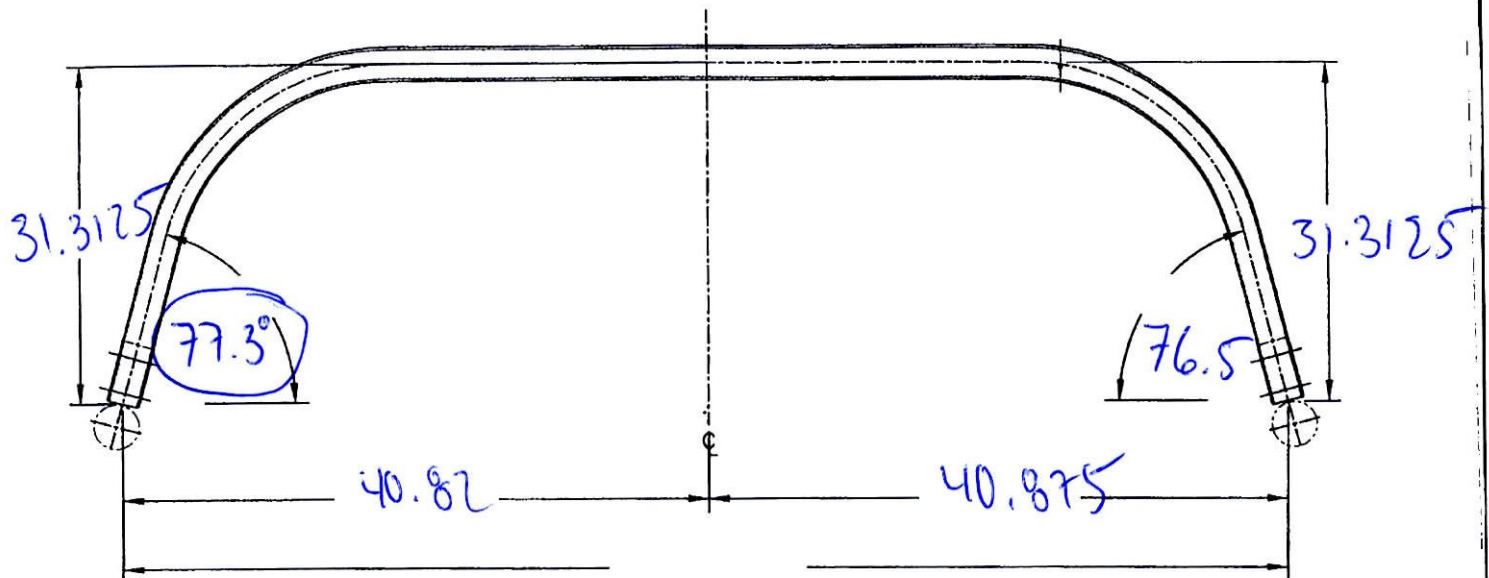
22

M136554

200

DART AEROSPACE LTD		Work Order:	158989
Description: Crosstube High Aft, SS (AS350/355)		Part Number:	D350-748-203
Inspection Dwg: D350-748-243 Rev: A		Page 1 of 1	

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes	35	35
Crushing	6.27	6.17
Comments		
Twist = 0.148"		

QC15 Inspection	/
Date	

Rev	Date	Change	Revised by	Approved
A	15.09.09	New Issue	KJ	

Item	Qty -243	Part Number	Description
1	X	D350-748-243	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6021-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AETC-1032	INSERT
6	2	MS21920-20 OR MS21920-21/-22	CLAMP (PER DART SPEC. M-MS21920-20/-21/-22)
7	1	NAS1149C0363R	WASHER (OR AN960C10)
8	1	NAS1635-3-8	SCREW (OR MS51958-63)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6021-125
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
- 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-243" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 8.4 (VIBRATING STYLUS)
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.290 HOLE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- 10) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

BENDING

- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 12) MAX AMPLITUDE OF RIBBLING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 13) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- 14) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 158989 MJS
170408

DEO ATTACHED

RELEASED

2015 MAR 18 qf

RELEASED

2015 MAR 18 CK

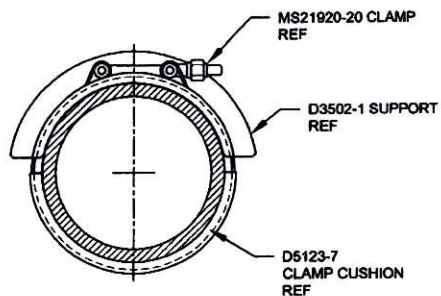
qf BCN 15/547 qf 14/2/25

UNDER REVIEW

qf 15/4/25 CK
CRF 15/541 qf 16/2/25

A	NEW ISSUE	DESCRIPTION	CP	15.01.21
REV.			BY	DATE
DESIGN	<u>qf</u>	DART AEROSPACE LTD		
DRAWN	<u>qf</u>	HAWKESBURY, ONTARIO, CANADA		
CHECKED	<u>A.P.</u>	DRAWING NO.	REV. A	
MFG. APPR.	<u>[Signature]</u>	D350-748-243	SHEET 1 OF 4	
APPROVED	<u>[Signature]</u>	TITLE	SCALE	
DE APPR.	<u>[Signature]</u>	CROSSTUBE (AS 350/355 HI AFT)	NTS	
DATE	15.01.21	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		

**D350-748-243
ASSEMBLY DETAIL**



SECTION A-A D4-2
SCALE 6X

INSTALL THIS SIDE ONLY, AFTER FINISH:
AETC-1032 INSERT
NAS1149C0363R WASHER
NAS1635-3-8 SCREW

14 15
D3502-1 SUPPORT
MS21920-20 CLAMP (OR -21/-22)
D5123-7 RUBBER CUSHION
2 PL

D350-748-243
BENT TUBE

DEO ATTACHED

RELEASED

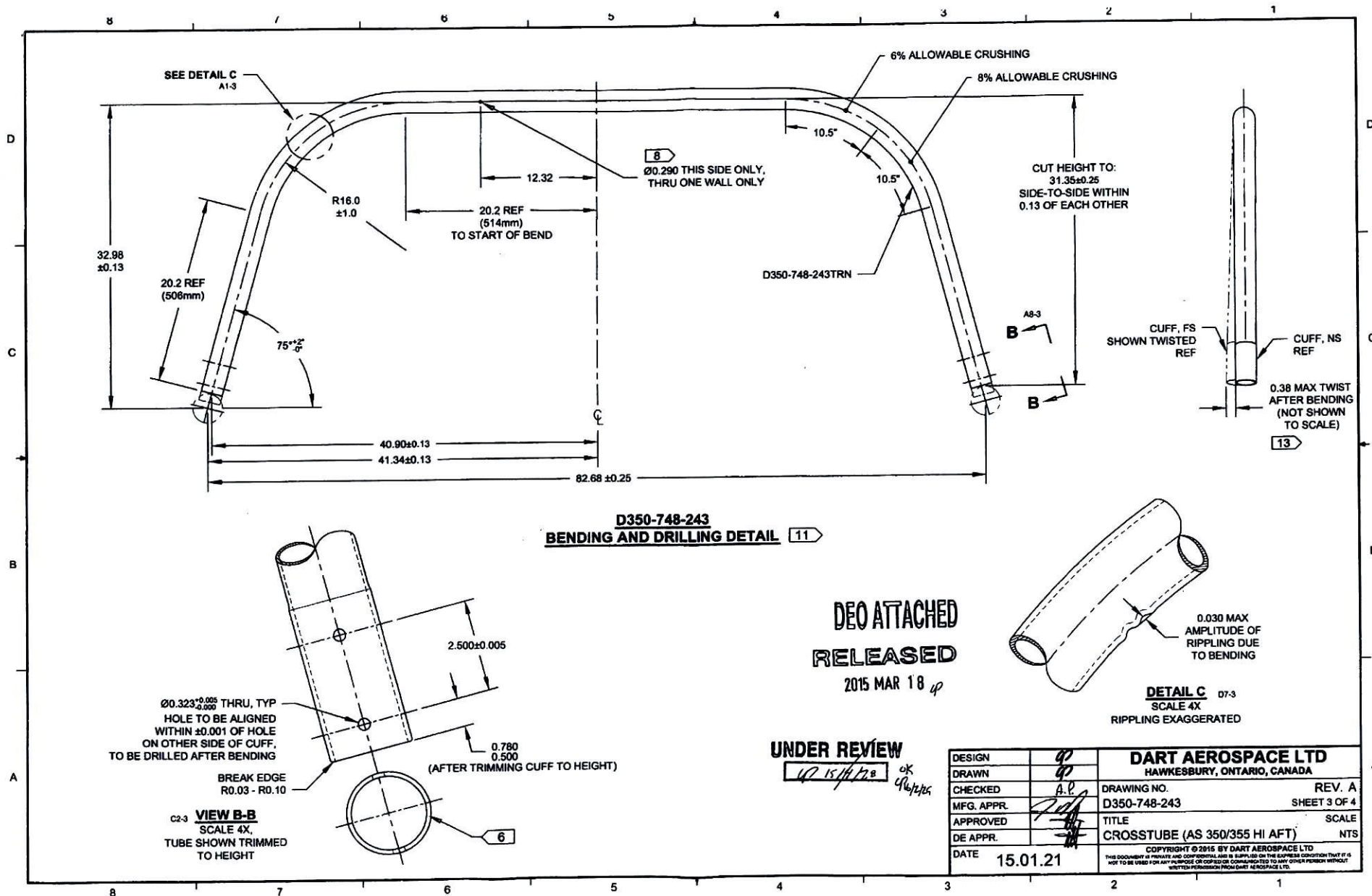
2015 MAR 18 47

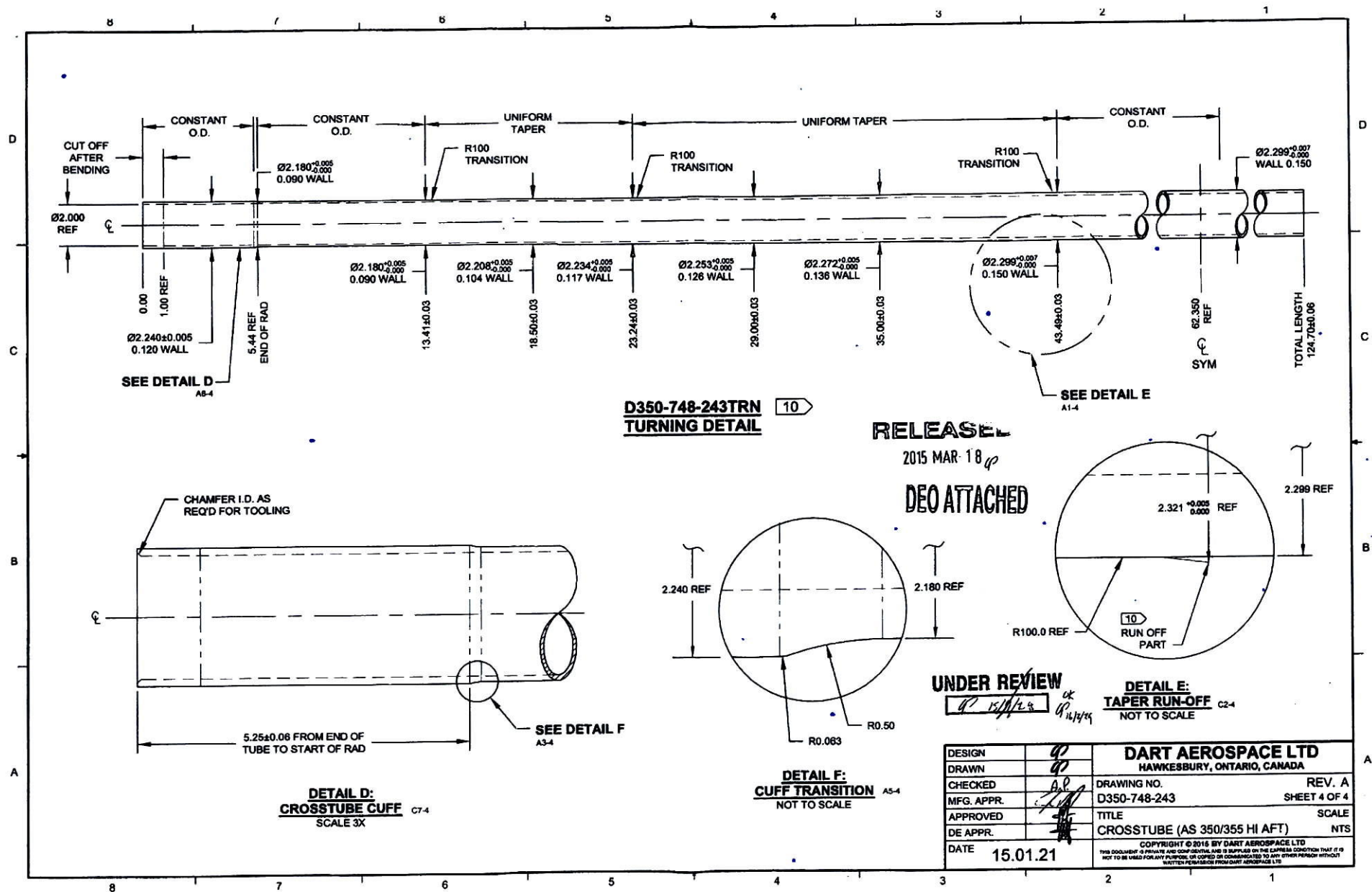
UNDER REVIEW

U 15/4/24

OK
9/16/29

DESIGN	40	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	40		
CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.	2/4	D350-748-243	SHEET 2 OF 4
APPROVED	2/4	TITLE	SCALE
DE APPR.	2/4	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	15.01.21	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	





DRAWING NO. D350-748-243	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D350-748-243-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>qp</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>		DE APPR. <i>[Signature]</i>		
DATE 15.11.18	DATE 15.11.18	DATE 16.02.19	DATE FEB 19 2016		DATE 2016.02.19		

AMEND NOTE 2 (SHEET 1) AS FOLLOWS:

- 2) FINISH: PREPARE SURFACE PER DART QSI 005 4.1.4
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
 OR
 POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3

RELEASED
 2016-02-26
 EN 16-534 *[Signature]*

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Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO038325

Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

PO No: PO038325

PO Date: 11/10/17

Due Date: 11/10/17

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Baker, Diane
Phone: dbaker@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments:

Items												
Line Item	Job	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	166319	D4883-7	-	End Fitting Outsource process - NDT per QSI038 4.1 Issue P/O: _____ LPI Per ASTM 1417 LEVEL 2 Certificate of conformaty is required.		Firmed	11/10/17	3 pcs	0 pcs	3 pcs	\$76.00/pcs	\$228.00
2	166320	D4880-1	-	Strut		Firmed	11/10/17	4 pcs	0 pcs	4 pcs	\$76.00/pcs	\$304.00
3	164477	D119- 796-141	-	Fwd Crosstube Installation Without Step (No Hardware) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: _____ LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order		Firmed	11/10/17	1 pcs	0 pcs	1 pcs	\$76.00/pcs	\$76.00
4	158989	D350- 748-203	-	AS350 / AS355 Stainless Steel Aft Crosstube ISSUE P/O TO SKY SERVICE: _____		Firmed	11/10/17	1 pcs	0 pcs	1 pcs	\$76.00/pcs	\$76.00
5	164645	D350- 748-203	-	AS350 / AS355 Stainless Steel Aft Crosstube ISSUE P/O TO SKY SERVICE: _____		Firmed	11/10/17	1 pcs	0 pcs	1 pcs	\$76.00/pcs	\$76.00
6	164731	D350- 748-103	-	AS350 / AS355 Stainless Steel Fwd Crosstube ISSUE P/O TO SKY SERVICE: _____		Firmed	11/10/17	1 pcs	0 pcs	1 pcs	\$76.00/pcs	\$76.00
7	157387	D350- 748-103	-	AS350 / AS355 Stainless Steel Fwd Crosstube ISSUE P/O TO SKY SERVICE: _____		Firmed	11/10/17	1 pcs	0 pcs	1 pcs	\$76.00/pcs	\$76.00
8	162388	D119- 796-241	-	Aft Crosstube Installation Without Step (No Hardware)		Firmed	11/10/17	1 pcs	0 pcs	1 pcs	\$76.00/pcs	\$76.00

**skyservice****Work Order Traveler**
Sky Service F.B.O. Inc.

PO 038325

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO33970	Customer:	Dept: NDT YUL	Reference: PO038325
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT ON 8 CROSSTUBES , 3 END FITTINGS AND 4 STRUTS AS PER PO038325

3 END FITTINGS , P/N# D4883-7 , J/S# 166319

4 STRUTS , P/N# D4880-1 , J/S# 166320

2 STAINLESS STEEL FWD CROSSTUBES , P/N# D350-748-103 , J/S# 157387 , 164731

2 STAINLESS STEEL AFT CROSSTUBES , P/N# D350-748-203 , J/S# 164645 , 158989

2 AFT CROSSTUBES , P/N# D119-796-241 , J/S# 163790 , 162388

2 FWD CROSSTUBES , P/N# D119-796-141 , J/S# 164477 , 165700

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-13						NOV 10 2017	
NO CRACK FOUND							
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , EMU. MPO15896, DEV. MPO11715 , UV LIGHT M-20142							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp 	Date: NOV 10 2017
Name: RAFIK MELIKIAN		



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Inventory

Operation Number	Operation	Serial Number	Job	Quantity	Weight	Original Serial Number	Location	Container	Status	Added	Special Comments	Label	Supplier	Change No
Part Number: D350-748-203 Revision: AS350 / AS355 Stainless Steel Aft Crosstube														
250	QC21-FG	S010260	158989	1 Ea	0	S010260	FG035	Bin	Stock	11/15/2017	Issue Container			CHG001
Operation Totals:		1		1	0									
Part Totals:		1		1	0									
Part Number: MS21042L4 Revision: Nut														
100	Receive Ea	S018318	158989	12 Ea	0	m138170	ST303	Bin	Stock	12/7/2017	Issue Container			
Operation Totals:		1		12	0									
Part Totals:		1		12	0									
Totals:		2		13	0									

Plex 1/8/2018 12:54 PM Dart.Boucher.Sylvie